

from Madeira. They are only 11 mm. diameter, but Azores specimens in the Norman collection are 14 mm. The species seems to me to be the European *V. lucida*. Probably the Cuming specimens did not come from the Madeira group, as the Cumingian localities are very unreliable. I found in the Cuming collection five other Helicoids labeled as from Madeira, but all known from quite other places and, with one exception, very distinct from anything in the Madeiran fauna. The exception is *Pyramidula retexta* Shuttll., a Canarian shell resembling *P. semiplicata* (Pfr.) in appearance, but brown all over, not mottled. It must be a rare species, as Wollaston had not seen a specimen.

In the Norman collection is a subfossil *Helix ustulata* Lowe, said to be from Madeira (Rev. B. Watson). It is genuine *ustulata*, but is from the Salvages, as shown by the rest of Watson's series in the possession of Mr. Tomlin.

*Punctum pygmaeum* and *Vitrea crystallina* have been recorded as fossil in the Pleistocene beds at Canical, Madeira, on the authority of Boog Watson. Mr. J. R. LeB. Tomlin has Watson's specimens, and was so kind as to lend them to me for examination. Both species appear to be correctly named, though the *V. crystallina* is a single very immature shell. I do not believe, however, that they are fossil. Such shells are easily carried by the wind over the sand hills, and thus mixed with the fossils. No other collectors have been able to find these species in the Canical beds.

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MOLLUSCA OF PISGAH FOREST, NORTH CAROLINA.

BY MINA L. WINSLOW.

The material on which the following list is based was collected for the Museum of Zoology, University of Michigan, during a part of the months of July and August, 1916. The Pisgah Forest region was approached by rail from Asheville to Brevard, thence by wagon to Pisgah Forest station, and by log railroad about seventeen miles northwest along the

Davidson River and Lookingglass Creek. Headquarters were made in the Schenck cabin in the Pink Beds at bench-mark 3278. The cabin was loaned through the kindness of the United States Forestry Service, and is so located that it forms a convenient base for work in the Pink Beds and the south-east slopes of the Pisgah Ridge. The valley called the Pink Beds is wide, covered with a dense growth of rhododendron and laurel (whence the name), and lies in Transylvania County between the Pisgah Ridge and mountains to the south. It is all a part of the drainage basin of the French Broad River. Asheville lies about thirty miles northeast and Waynesville a somewhat shorter distance northwest.

It should be remarked here that an exceptionally heavy and continuous rainfall delayed arrival and interfered with field work, reducing the actual time spent in the field to a mere fraction of the expected amount. Living was complicated by the isolation of the community, due to flooding and landslips, so that supplies could not come in and communication was cut off for almost three weeks.

The mountains are heavily timbered, with an occasional "bald" at the top. In some places the trees have been thinned by lumbering operations which have been supervised to such an extent that the forest has been left in good condition. In the valley and along the creeks rhododendrons and laurel grow densely. Chestnut and oak are the prevailing trees, with intermixture of many others, such as whitewood, maple, beech, and so forth, with an occasional pine.

There seemed to be a decided aversion for chestnut wood on the part of the snails. Oak forests were the more favored habitats, the woods of Rich Mountain, a long flat-topped hill, yielding the greatest variety of snails. *Gastrodonta elliotti* was found everywhere, and a small *Zonitoides arboreus* was fairly abundant. Of the larger shells, *Polygyra andrewsi normalis* was the common form, and often showed a decided rosy tint. The ten specimens of *Omphalina cuprea polita* are all small, possibly immature, and no others were taken. The lack of lime in this granite country may account in part for the scarcity of mollusks and the extreme fragility of most of the larger shells.

The writer is indebted to Mr. G. H. Clapp for identifications and notes on material submitted to him. All the mollusks listed are in the Museum of Zoology, Catalog Nos. 10331 to 10463 inclusive.

LIST OF SPECIES WITH NOTES ON HABITAT.

*Polygyra albolabris* (Say). Rich Mountain, Pigeon Gap Trail, Pink Beds. On the ground, on dead wood, on white oak and maple trees as high as twelve feet from the ground. 6 specimens.

*Polygyra andrewsae normalis* Pilsbry. Pigeon Gap Trail, Wagon Gap Trail, Asheville Road at about 4000 ft. altitude. Crawling on the ground, on dead leaves; along the road, under boards on a saw-dust pile, on maple and oak trees as high as twelve feet from the ground, on a clay bank along the road. 40 specimens.

*Polygyra christyi* (Bland). Pink Beds, Bennett Gap Road, Rich Mountain. In woods on a north slope, on the ground, on dead wood. 4 specimens.

*Polygyra clarkii* (Lea). Rich Mountain, south of the Pink Beds, Davidson River. In decayed log, on clay bank along log railroad, in river débris. 3 specimens.

*Polygyra hirsuta altispira* Pilsbry. Rich Mountain, Bennett Gap Road, Wagon Gap Trail, Pink Beds. Under oak logs, in forest débris, under old beech log. The species seems to prefer dark habitats, under rather than on logs and stumps. 21 specimens.

*Polygyra wheatleyi* (Bland). Pink Beds, Chubb Gap Trail, Pigeon Gap Trail, Rich Mountain, Wagon Gap Trail. On the ground above a spring, near a brook, on dead wood and in débris. 8 specimens.

*Polygyra rugeli* (Shuttleworth). Pink Beds. One specimen only, taken in woods on a north slope.

*Polygyra zaleta* (Binney). Pigeon Gap Trail. One specimen only, taken on leaves along the trail.

*Circinaria concava* (Say). Asheville Road, Rich Mountain, Pink Beds. On clay bank beside the road, on leaves on the ground. 4 specimens.

*Omphalina cuprea polita* Pilsbry. Pink Beds, Bennett Gap Road, Asheville Road at about 4000 ft. altitude. Under dead wood near a creek, in forest débris, under stones near a spring, under rotten wood in rhododendron thicket. 10 specimens.

*Mesomphix rugeli* (W. G. Binney). Pink Beds. Along the log railroad. 1 specimen.

*Mesomphix andrewsae* Pilsbry. Pink Beds. In decayed wood and débris in the rhododendron and laurel tangle. 2 specimens.

*Vitrea carolinensis* Cockerell. Asheville Road at about 4000 ft. altitude, Davidson River débris, Bennett Gap Road. In débris above the road, and along the river. 4 specimens.

*Vitrea cryptomphala* Clapp. Pigeon Gap Trail. Under a stone. 2 specimens.

*Vitrea indentata* (Say). Pink Beds, Bennett Gap Road, Asheville Road, Rich Mountain, Davidson River débris. In leaves and forest débris, under a stone near a creek, under stones and débris beside a spring, under dead oak log. 8 specimens.

*Vitrea lamellidens* Pilsbry. Pink Beds. Under moss on a beech stump. 1 specimen.

*Vitrea multidentata?* (Binney). Débris from Davidson River. 5 specimens.

*Vitrea sculptilis* (Bland). Débris from Davidson River. 1 specimen.

*Vitrinizonites latissimus* Lewis. Bennett Gap Road, Pink Beds, Asheville Road. Under stones and in débris near a spring, on dead leaves near a brook, in débris. 14 specimens.

*Zonitoides arborea* (Say). Rich Mountain, Bennett Gap Road, Asheville Road, Davidson River débris. On rotten wood, abundant under bark on a decayed stump as high as ten feet from the ground, on an oak log. The shells from the high stump are smaller than normal, and have "very fine impressed radial lines" (Clapp). 50+ specimens.

*Gastrodonta elliotti* (Redfield). Pigeon Gap Trail, Pink Beds, Rich Mountain, Asheville Road, Bennett Gap Road. Under and in rotten wood in the open woods and in the rhododendron-laurel thickets, under moss on a beech stump,

in débris of Davidson River, under stones, and under a mossy rock wet with spring water. 100+ specimens.

*Gastrodonta interna* (Say). Pink Beds, Rich Mountain, Bennett Gap Road. In rotten stump, in charred wood, among chips. 10 specimens.

*Gastrodonta gularis* (Say). Pigeon Gap Trail, Bennett Gap Road, Asheville Road at about 4000 ft. altitude, Rich Mountain, Pink Beds. Under stones beside a spring, under logs and stones, in forest débris. 13 specimens.

*Gastrodonta intertexta* (W. G. Binney). Rich Mountain, Bennett Gap Road. In decaying wood (beech and birch), and in forest débris. 4 specimens.

*Helicodiscus fimbriatus?* Wetherby. Rich Mountain. Under an old oak log. Two imperfect specimens, not fully grown.

*Philomyces carolinianus* (Bosc.). Bennett Gap Road, near Avery Creek, Pink Beds, Rich Mountain, Pigeon Gap Trail. Under a stone near the road, on a stone at a spring, under boards and beech and oak logs, under moss and bark of stumps and trees, under mossy rock, on saw-dust heap. 16 specimens.

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NOTES ON THE GENUS ACTEOCINA, GRAY.

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BY A. M. STRONG.

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Dr. Dall in his new "Summary of Marine Shell-bearing Mollusks of the Northwest Coast of America" (Bull. U. S. Nat. Mus., No. 112, p. 61) lists seven species of the Genus *Acteocina* (formerly known as *Tornatina*), described by the early workers on West Coast shells, and adds one new species. The ranges given in the Bulletin would seem to add confusion to an already badly confused situation. The following table shows the ranges given by the different authors: